ATMOSPHERIC PRESSURE.

[In inches and hundredths.]

The distribution of mean atmospheric pressure reduced to sea level, as shown by mercurial barometers, not reduced to standard gravity, and as determined from observations taken daily at 8 a. m. and 8 p. m. (seventy-fifth meridian time), is shown by isobars on Chart IV. That portion of the reduction to standard gravity that depends on latitude is shown by the numbers printed on the right-hand border.

The general configuration of the isobars on Chart IV is closely in accord with normal September conditions. It is to be noticed, however, that the geographic position of the area of highest pressure, usually on the Piedmont Plateau, was this year quite a distance inland, viz, over the Ohio Valley and Lake Region.

It is generally conceived that the September high in the eastern part of the United States is an extension of the great ocean high that stretches westward from the Azores between the thirty-fifth and fortieth parallels. The increase in pressure from August to September in the present case would seem to be greater over land areas than over adjacent water surfaces. The greatest increase occurred in the Lake Region and Ohio Valley, although there was a marked increase in all sections save portions of Montana, South Dakota, and the middle Plateau. Pressure was high at Bermuda, although the comparative increase was much less than at stations in the Ohio Valley. The numerical values of Tables I and III should be consulted for further details.

AREAS OF HIGH AND LOW PRESSURE.

By Prof. H. A. HAZEN.

During September there were nine highs and eleven lows of sufficient definiteness to be charted (see Maps I and II at the end of this REVIEW). The accompanying table gives the principal facts as to place of origin and disappearance, duration, length, and velocity of each high and low. In making up the mean data, low No. XI was omitted for the reason that there was only the beginning of a storm, it having been kept back and finally dissipated by the high to the north.

Movements of centers of areas of high and low pressure.

Number.	First observed.			Last observed.			Path.		Average velocities.	
	Date.	Lat. N.	Long. W.	Date.	Lat. N.	Long W.	Length.	Duration.	Daily.	Hourly.
High areas.		°	°		°	°	*Miles.*	*Days.*	*Miles.*	*Miles.*
I	1, a.m.	50	86	6, a.m.	39	79	1,410	5.0	282	11.8
II	6, a.m.	49	87	9, p.m.	33	79	2,040	3.5	583	24.3
III	7, p.m.	39	125	12, p.m.	41	68	3,420	5.0	684	28.5
IV	10, p.m.	46	128	17, p.m.	26	82	4,320	7.0	617	25.7
V	13, a.m.	38	125	18, a.m.	33	100	2,820	5.0	564	23.5
VI	18, a.m.	52	117	23, a.m.	44	59	3,360	5.0	672	28.0
VII	21, a.m.	48	110	24, a.m.	30	93	1,440	3.0	480	20.0
VIII	22, a.m.	47	121	24, a.m.	44	111	720	2.0	360	15.0
IX	25, a.m.	51	109	30, p.m.	36	78	2,460	5.5	447	18.6
Total							21,990	41.0	4,689	
Mean of 9 tracks							2,443		521	21.7
Mean of 41 days									536	22.3
Low areas.										
I	1, a.m.	52	117	4, a.m.	53	101	1,140	3.0	380	15.8
II	4, p.m.	54	108	11, a.m.	48	53	3,900	6.5	600	25.0
III	10, p.m.	24	83	14, a.m.	34	99	1,260	3.5	360	15.0
IV	10, p.m.	51	117	14, a.m.	47	59	2,760	3.5	789	32.9
V	12, a.m.	51	124	18, a.m.	49	53	3,600	6.0	600	25.0
VI	16, p.m.	54	114	21, a.m.	48	64	3,480	4.5	773	32.2
VII	18, p.m.	47	125	21, a.m.	50	89	1,740	2.5	696	29.0
VIII	20, a.m.	23	85	25, a.m.	48	59	2,580	5.0	516	21.5
IX	23, p.m.	55	111	27, a.m.	49	57	2,580	3.5	737	30.7
X	26, a.m.	53	121	30, p.m.	52	70	3,060	4.5	680	28.3
XI*	27, a.m.	25	86	30, p.m.	28	86	600	3.5	171	7.1
Total							26,100	42.5	6,131	
Mean of 10 tracks							2,610		613	25.5
Mean of 42.5 days									614	25.6

*Not used in final summary.

HIGHS.

In the first half of the month the general tendency of highs was along the northern border of the country; during the latter half their tendency was more across the country. The velocity of apparent motion was very slow at the opening and closing of the month, but one and a half to twice as fast in the middle.

Four highs began on the Pacific Coast, two in Montana, two over Lake Superior, and one in Wyoming. Six disappeared on the Atlantic Coast, one in Wyoming, one in Texas, and one on the middle Gulf Coast.

LOWS.

For the first time this season the conditions have been favorable for West India storms. The first of these, No. III, began to the north of Cuba on the 10th, p. m., though there had been a slight disturbance forming for several days previously. The storm traveled very slowly (15 miles per hour) a little to the north of west and finally disappeared in Texas morning of 14th. The lowest pressure noted was 29.58 off Galveston, p. m. of 12th. The heaviest rain in twenty-four hours was 1.12 inch at Mobile, p. m. of 12th, showing a rather remarkable deficiency, and possibly one reason for the rapid dissipation of the storm on reaching the land. The highest wind of the storm was at Port Eads, 72 miles per hour, northeast, a. m. of 12th, and the next highest was 42 miles at New Orleans, a. m. and p. m. of 12th. Another Gulf storm, No. VIII, began with a disturbance in the southeast Gulf before the 20th. Its motion was rather slow (21.5 miles) to a point a little east of north, reaching the Gulf of St. Lawrence, a. m. of 25th. The lowest pressure noted was 29.62 off Savannah, a. m. of 22d. Phenomenal rains attended this storm on the west Florida Coast and off the south Atlantic Coast, except in south Florida. Tampa reported 6.56 inches in twenty-four hours, a. m. of 21st; Jacksonville, 5.40 inches, p. m. of 21st; Savannah, 2.78 inches, a. m. of 22d, and Charleston, 1.48 inch, same date. Jupiter (170 miles from Tampa) had only 0.01 of an inch of rain, and the same amount fell at Key West. The highest wind was 50 miles per hour at Charleston, a. m. of 22d. In both of these storms all shipping and Gulf and south Atlantic ports received ample warning of high winds.

The third Gulf storm was first noted as a slight disturbance off west Cuba, a. m. of the 25th, the pressure at Habana having fallen off 0.10 in twenty-four hours. This disturbed condition practically continued in the east and southeast Gulf throughout the storm. Light rains were experienced. The highest wind, 48 miles northeast, was noted at Port Eads, a. m. of the 30th.

Aside from these Gulf storms, all the lows of the month had a trajectory north of this country. They all began to the north of Montana and Washington. No. I disappeared in Manitoba, No. VII to the north of Lake Superior, and all the rest over or very near Newfoundland.

The most remarkable characteristic of these lows has been their lack of rainfall. Leaving out of the count the coast stations, only ten have reported a fall of over 1 inch in twenty-four hours during the whole month. As low No. II was hovering over North Dakota the highest temperature ever experienced in September at Bismarck was noted, 102°, p. m. of the 7th. This low was followed in the same track by No. IV, and the two caused phenomenal heat in the middle and northern States about the Mississippi and Ohio valleys. On the 9th the highest temperatures ever noted in first ten days of September were reported from Alpena and Marquette.

Another marked peculiarity of these highs and lows was the lack of high winds. Many times during the month very steep barometric gradients between highs and lows occurred, but almost invariably without any high winds. Aside from